AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1.-12. (Cancelled)

13. (Currently Amended) A method for receiving a digital message transmitted from a transmitter, ~~said~~ the message having N digits, each of ~~said~~ the N digits having any one of M values, and wherein each of ~~said~~ the M values k corresponds with a k^{th}-chaotic signal generator having a chaotic characteristic value associated with a chaotic algorithm to generate a chaotic signal, ~~said~~ the chaotic signal having been transmitted within a bit period and comprising a series of numbers generated by ~~the steps of~~:

~~a)~~ inputting a random number to the chaotic algorithm to generate a first chaotic number;

~~b)~~ inputting the first chaotic number to the chaotic algorithm to generate a second chaotic number; and

~~c)~~ ~~repeating step b)~~ repeating said inputting the first chaotic number to the chaotic algorithm to generate a second chaotic number, using the second chaotic number as the first chaotic number until all numbers to be transmitted within the bit period are generated,

~~said~~ the method for receiving a digital message ~~including the steps of~~comprising:

receiving the chaotic signal at a receiver storing the chaotic characteristic values of all chaotic signal generators used to transmit the message~~, storing a demodulating algorithm,~~; and

demodulating the chaotic signal to generate the transmitted value k, said demodulating~~on of~~ the chaotic signal ~~by the demodulating algorithm~~ including: ~~the steps of:~~

~~(i)~~ ~~evaluating~~ determining the chaotic characteristic value of the received chaotic signal based at least in part on the chaotic algorithm;

~~(ii)~~ matching the ~~evaluated~~ determined chaotic characteristic value of the received chaotic signal with the chaotic characteristic values stored in the receiver; and

~~(iii)~~ assigning the transmitted value *k* by reference to the closest match between the ~~evaluated~~ determined chaotic characteristic value and the stored chaotic characteristics values.

14. (Cancelled)

15. (Currently Amended) ~~A~~ The method ~~as claimed in~~ of Claim 13, wherein ~~the evaluated~~said determining the chaotic characteristic value of the received chaotic signal based at least in part on the chaotic algorithm includes:~~and the stored chaotic characteristic values are matched by the steps of:~~

~~d) pairing the first two numbers of the chaotic signal received by the receiver to form a first plot on a two-dimensional plane;~~

~~e)~~ ~~repeating step d) for~~ pairing every~~all~~ two consecutive chaotic numbers ~~subsequently~~ received ~~by the receiver~~ within the bit period to generate a return map of the chaotic signal; and

~~f)~~ ~~evaluating~~ determining the chaotic value of the return map based at least on the chaotic algorithm~~; and~~

~~g) matching the chaotic value with the stored chaotic values~~.

16. (Currently Amended) ~~A~~ The method ~~as claimed in~~ of Claim 13, wherein M equals to 2, and each digit has a value of either 0 or 1.

17. (Currently Amended) ~~A~~ The method ~~as claimed in~~ of Claim 16, wherein the chaotic algorithm is $y = m[0.5 - 2|x|]$, x is an input number, m is the chaotic characteristic value, and y is one of the numbers forming the chaotic signal.

18.-29. (Cancelled)

30. (Currently Amended) A receiver for use in a system for transmitting and receiving a digital message having N digits, each of said N digits having any one of M values, and wherein each of ~~said~~ the M values k corresponds with a k^{th} -chaotic signal generator having chaotic characteristic value associated with a chaotic algorithm to generate a chaotic signal, ~~said~~ the chaotic signal having been transmitted within a bit period comprising a series of numbers generated by ~~the steps of~~:

~~a)~~ inputting a random number to the chaotic algorithm to generate a first chaotic number;

~~b)~~ inputting the first chaotic number to the chaotic algorithm to generate a second chaotic number; and

~~c)~~ ~~repeating step b)~~ repeating said inputting the first chaotic number to the chaotic algorithm to generate a second chaotic number, using the second chaotic number as the first chaotic number until all numbers to be transmitted within the bit period are generated,

wherein ~~said~~ the receiver ~~has~~ comprises a demodulator and ~~stores~~ is configured to store the chaotic characteristic values of all of the chaotic signal generators used to transmit the message, and configured to receive and demodulate the chaotic signal to generate the transmitted value, wherein to demodulate ~~said demodulation of~~ the received chaotic signal, the receiver is configured to ~~including the steps of~~:

~~(i)~~ ~~evaluating~~ determine the chaotic characteristic value of the received chaotic signal based at least in part on the chaotic algorithm;

~~(ii)~~ ~~matching~~ match the determined~~evaluated~~ chaotic characteristic value of the received chaotic signal with the chaotic characteristic values stored in the receiver; and

~~(iii)~~ ~~assigning~~ assign the transmitted value k by reference to the closest match between the ~~evaluated~~ determined chaotic characteristic value and the stored chaotic characteristics values.

31. (Cancelled)

32. (Currently Amended) ~~A~~ The receiver ~~as claimed in~~ of Claim 30, wherein to determine ~~the demodulator matches~~ the evaluated chaotic value of the chaotic signal based at least in part on the chaotic algorithm, the receiver is configured to~~with the stored chaotic characteristic values by the demodulating algorithm by the steps of~~:

~~d) pairing the first two numbers of the chaotic signal received by the receiver to form a first plot on a two-dimensional plane;~~

~~e)~~ ~~repeating step d) for all~~ pair every two consecutive chaotic numbers ~~subsequently~~ received ~~by the receiver~~ within the bit period to generate a return map of the chaotic signal; and

~~f)~~ determine ~~evaluating~~ the chaotic value of the return map based at least in part on the chaotic algorithm~~; and~~

~~g) matching the chaotic value with the stored chaotic values~~.

33. (Currently Amended) ~~A~~ The receiver ~~as claimed in~~ of Claim 30, wherein *M* equals to 2, and each digit has a value of either 0 or 1.

34. (Currently Amended) ~~A~~ The receiver ~~as claimed in~~ of Claim 33, wherein the chaotic algorithm is $y = m[0.5 - 2|x|]$, x is an input number, m is the chaotic characteristic value, and y is one of the numbers forming the chaotic signal.

35. (New) A method for receiving from a transmitter a digital message having *N* digits, wherein each of the *N* digits has any one of *M* values, and wherein each of the *M* values corresponds to one of *M* chaotic signal generators for the transmitter, the method comprising:

receiving, by a receiver, a chaotic signal from the transmitter; and

evaluating, by the receiver, the chaotic signal to determine which one of the *M* values the chaotic signal conveys;

wherein said evaluating includes determining, by the receiver, which one of the *M* chaotic signal generators of the transmitter generated the chaotic signal;

wherein said determining which one of the *M* chaotic signal generators generated the chaotic signal includes determining, by the receiver, a chaotic characteristic value for the chaotic signal and comparing the determined chaotic characteristic value to a plurality of chaotic characteristic values stored on the receiver and correspondingly associated with the *M* chaotic signal generators; and

wherein said determining a chaotic characteristic value for the chaotic signal is based, at least in part, on a chaotic algorithm associated with the *M* chaotic signal generators known to the receiver, and wherein each of the *M* chaotic signal generators is associated with the chaotic algorithm and has a different chaotic characteristic value.

36. (New) The method of Claim 35, wherein said determining a chaotic characteristic value for the chaotic signal is based, at least in part, on a chaotic algorithm associated with the *M* chaotic signal generators known to the receiver comprises:

constructing, by the receiver, a return map having a plurality of points and using successive pairs of numbers from the chaotic signal; and

fitting, by the receiver, points on the return map to the chaotic algorithm to generate the chaotic characteristic value for the chaotic signal.

37. (New) The method of Claim 35, wherein *M* equals 2, wherein each of the *N* digits has a value of either 0 or 1, and wherein the chaotic signal comprises a series of numbers transmitted within a bit period.

38. (New) The method of Claim 37, wherein the chaotic algorithm is $y = m[0.5 - 2|x|]$, where x is an input number, m is the chaotic characteristic value, and y is one of the numbers within the bit period forming the chaotic signal.

39. (New) A receiver for receiving from a transmitter a digital message having *N* digits, wherein each of the *N* digits has any one of *M* values, and wherein each of the *M* values corresponds to one of *M* chaotic signal generators for the transmitter, the receiver comprising:

a demodulator configured to evaluate a chaotic signal received from the transmitter to determine which one of the *M* values the chaotic signal conveys;

wherein the evaluation includes determining which one of the *M* chaotic signal generators for the transmitter generated the chaotic signal;

wherein said determining which one of the *M* chaotic signal generators generated the chaotic signal includes determining a chaotic characteristic value for the chaotic signal and comparing the determined chaotic characteristic value to a plurality of chaotic characteristic values stored on the receiver and correspondingly associated with the *M* chaotic generators; and

wherein said determining a chaotic characteristic value for the chaotic signal is based, at least in part, on a chaotic algorithm associated with the *M* chaotic signal generators known to the receiver, and wherein each of the *M* chaotic signal generators is associated with the chaotic algorithm and has a different chaotic characteristic value.

40. (New) The receiver of Claim 39, wherein the receiver is configured to determine the chaotic characteristic value for the chaotic signal based, at least in part, on a chaotic algorithm associated with the *M* chaotic signal generators known to the receiver by:

constructing a return map having a plurality of points and using successive pairs of numbers from the chaotic signal; and

fitting points on the return map to the chaotic algorithm to generate the chaotic characteristic value for the chaotic signal.

41. (New) The receiver of Claim 39, wherein *M* equals 2, and wherein each of the *N* digits has a value of either 0 or 1.

42. (New) The receiver of Claim 41, wherein the chaotic algorithm is $y = m[0.5 - 2|x|]$, where *x* is an input number, m is the chaotic characteristic value, and y is one of the numbers within the bit period forming the chaotic signal.